

Remarks

The Office Action dated June 9, 2011 presents the following claim rejections: claims 1, 4-7, 9-10, 12-19 and 21 stand rejected under 35 U.S.C. § 103(a) over Omura *et al.* (EP 1168455) in view of Peake *et al.* (U.S. Patent Pub. No. 2005/0173758); claims 2 and 11 stand rejected under 35 U.S.C. § 103(a) over the '455 reference in view of the '758 reference further in view of Onda *et al.* ("SIC Integrated MOSFETs" Physica Status Solidi (A), Applied Research, Berlin, DE, vol.162, no. 1, 16 July 1997, pages 369-388); claims 3 and 20 stand rejected under 35 U.S.C. § 103(a) over the '455 reference in view of the '758 reference further in view of Miyano *et al.* (JP 403211885); and claim 8 stands rejected under 35 U.S.C. § 103(a) over the '455 reference in view of the '758 reference further in view of Hshieh *et al.* (U.S. Patent Pub. No. 2001/0003367). In the following discussion, Applicant traverses the objections and rejections, and does not acquiesce to any rejection or averment in this Office Action.

Applicant respectfully traverses all rejections under 35 U.S.C. § 103(a), for failing to show that the doping gradient was recognized as a results effective variable. Rather, the relied upon portions of the asserted '455 reference relate to a total doping concentration of a drift region. As discussed in more detail hereafter, experimentation with different levels of total doping concentration is not equivalent to experimentation with a doping gradient, and therefore, the Office Action has not shown that the doping gradient was recognized as a results effective variable. *See e.g. Ex parte Microchip Technology, Inc.*, Board of Patent Appeals and Interferences, Appeal 2009-015199, August 11, 2010, p. 11 (Overturning a rejection because the examiner alleged routine experimentation relating to "the number of pins," but did not show that the number of pins was "a parameter subject to optimization.")

In asserting correspondence with the claimed invention as related to the doping concentration in the drift region being 50 times greater adjacent a drain region than adjacent a body region, it appears that the Office Action has relied upon the increasing the doping concentration of a drift region as suggested in the '455 reference rather than increasing the doping gradient of the drift region. The Office Action has indicated that the 50 times difference in the drift layer is not taught in the '455 reference, but it would have been obvious of one skilled in the art to experiment with the teachings of the

reference to achieve the desired performance. Page 8 of the Office Action. This, however, does not appear to be the case because the '455 reference suggests increasing the doping (impurity) concentration of the drift region in order to decrease the ON resistance, however, there does not appear to be an indication in the reference, nor has the Office Action asserted, that the gradient of the concentration is increased in order to decrease the ON resistance. The '455 reference states, "In this structure, the maximum impurity concentration of the drift layer 12 can be increased. Hence, the ON resistance can be further decreased." Para. 0058. Increasing the total doping impurity concentration a layer would not alter the doping gradient of the layer because the impurity throughout the layer is uniformly increased, and thus the gradient remains the same. The '455 reference does not indicate the level of the gradient present in the drift region. Without such an indication, one skilled in the art would not experience with the doping concentration gradient, but only with the doping concentration itself.

According to M.P.E.P. § 2144.05(b), "A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977) (The claimed wastewater treatment device had a tank volume to contractor area of 0.12 gal./sq. ft. The prior art did not recognize that treatment capacity is a function of the tank volume to contractor ratio, and therefore the parameter optimized was not recognized in the art to be a result-effective variable.). *See also In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) (prior art suggested proportional balancing to achieve desired results in the formation of an alloy)." Applicant submits that because the Office Action has not recognized that the doping concentration gradient is a results-effective variable because '455 reference does not appear to suggest increasing the doping concentration gradient. One skilled in the art would not experiment with the doping gradient, as the Office Action suggests, but the doping concentration. Therefore, the 50 times gradient difference in the claimed invention would not be realized. Because the references do not teach the gradient difference as claimed, and one skilled in the art would not be compelled to routinely experiment with the doping gradient in a drift

region, the Office Action has not shown correspondence with the claimed invention “as a whole,” and the §103(a) rejection of claims 1-21 is improper, and should be removed.

Applicant traverses the 35 U.S.C. § 103(a) rejection of claims 1-21 because the cited references teach away from the Office Action’s proposed combination. Consistent with the recent Supreme Court decision, M.P.E.P. § 2143.01 explains the long-standing principle that a § 103 rejection cannot be maintained when the asserted modification undermines either the operation or the purpose of the main reference - the rationale being that the prior art teaches away from such a modification. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007) (“[W]hen the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be non-obvious.”). Applicant submits that the combination teaches away because the ‘455 reference teaches that the first insulating film 16 (*i.e.*, the alleged field plate insulator) is preferably thicker than the second insulating film 18 (*i.e.*, the alleged gate-field plate insulator), while the thickness of film 16 may be determined by a breakdown voltage and the thickness of film 18 may be determined by a threshold voltage. *See, e.g.*, paragraph 0031. The specific example thicknesses given by the ‘455 reference indicate that film 16 should be substantially thicker than film 18 (*e.g.*, 3,000Å to 30,000Å versus 400Å to 450Å). By expressly teaching that film 16 should be thicker than film 18, the ‘455 reference teaches a relationship directly opposite, and therefore divergent, from the thickness of the gate-field plate insulator being greater than or equal to the thickness of the field plate insulator, as in the ‘758 reference. Not only does the ‘455 reference teach the relationship of the optimal or preferred thicknesses are *opposite* of the proposed modification with the ‘758 reference, it teaches that their respective thickness are between *seven to seventy-five times* different (*see, e.g.*, pp. 10:10-11, 25-26). Under M.P.E.P. § 2143.01, the rejections cannot be maintained.

Further, the Office Action fails to provide proper motivation for the asserted modification. Under M.P.E.P. § 2143.01, “obviousness can be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so.” The Office Action’s asserted motivation to modify the teachings of the ‘455 reference is to “withstand the potential difference therebetween as a bias potential is applied to the field plate taught by [the ‘758

reference].” Page 8 of the Office Action. The Office Action’s asserted motivation for combining the references is a problem identified in the secondary reference. Without modifying the primary (‘455) reference with the field plate of the secondary (‘758) reference it would appear that the alleged problem the combination is designed to solve would not exist. As a result, one skilled in the art would not modify the ‘455 reference with the ‘758 reference to bring in an issue associated with the ‘758 reference that the ‘758 reference is designed to solve. Accordingly, the Office Action has failed to provide proper motivation for the modification to the ‘455 reference.

In view of the remarks above, Applicant believes that each of the rejections has been overcome and the application is in condition for allowance. Should there be any remaining issues that could be readily addressed over the telephone, the Examiner is asked to contact the agent overseeing the application file, Peter Zawilski, of NXP Corporation at (408) 474-9063 (or the undersigned).

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